AMENDMENTS TO THE CLAIMS

1-188. (canceled)

189. (currently amended) Apparatus for measuring mechanical deformation, comprising:

a housing;

a base electrode; ~~and~~

a deformable electrode, mechanically coupled to the base electrode and to the housing, the base electrode and the deformable electrode defining a capacitor having capacitance, such that the capacitance is varied responsive to deformation of the deformable electrode; and

at least one deformable-electrode supporter,

wherein when no force is applied to the deformable electrode, a shortest distance between the base electrode and the deformable electrode varies along a length of the deformable electrode, the base electrode and the deformable electrode converging, at a fixed-region along the length of the base electrode, to a closest possible distance from each other, which is fixed by structure of the apparatus, and

wherein the deformable-electrode supporter is configured to support the deformable electrode at a support region that is remote from the fixed region.

190. (canceled)

191. (original) Apparatus according to claim 189, wherein the deformable electrode is adapted to be coupled to a user, so as to deform responsive to respiration of user.

192. (original) Apparatus according to claim 189, and comprising a member, mechanically coupled to the deformable electrode, such that movement of the member deforms the deformable electrode and varies the capacitance.

193. (original) Apparatus according to claim 192, and comprising a belt, adapted to be placed around a torso of a user and to cause movement of the member responsive to a change in circumference of the torso.

194. (original) Apparatus according to claim 192, wherein the member is adapted to be in physical contact with the deformable electrode.

195-287. (canceled)

288. (currently amended) A method for measuring mechanical deformation with apparatus, comprising mechanically coupling a base electrode to a deformable electrode, the base electrode and the deformable electrode defining a capacitor having capacitance, such that:

the capacitance is varied responsive to deformation of the deformable electrode, ~~and~~

when no force is applied to the deformable electrode, a shortest distance between the base electrode and the deformable electrode varies along a length of the deformable electrode, the base electrode and the deformable electrode converging, at a fixed-region along the length of the base electrode, to a closest possible distance from each other, which is fixed by structure of the apparatus, and

the deformable electrode is supported by a deformable-electrode supporter at a support region that is remote from the fixed region.

289-294. (canceled)

REMARKS

The present application contains claims 1-294, the status of which is as follows:

(a) Claims 1-188, 190, 195-287, and 289-294 have been canceled without prejudice.

(b) Claims 189, and 288 are currently amended.

(c) Claim 191-194 are as originally filed.

Amendment to the Figures

Fig. 17B has been currently amended to remove a reference numeral 414, which was included in error. A replacement drawing sheet, including Fig. 17B as currently amended is attached to this communication.

Amendments to the Claims

Claims 189 and 288 have been amended to recite "when no force is applied to the deformable electrode, a shortest distance between the base electrode and the deformable electrode varies along a length of the deformable electrode, the base electrode and the deformable electrode converging, at a fixed-region along the length of the base electrode, to a closest possible distance from each other, which is fixed by structure of the apparatus."

This embodiment is illustrated in Figs. 17A-B of the application, which show:

a deformable plate 406 (the deformable electrode), which is conductive on at least one large surface thereof; and

a conductive layer 414 (the base electrode), which is printed on a plate 412.

Conductive layer 414 is shown in dark black lines in Fig. 17B. An insulating layer 418 (shown in vertical hash lines) prevents contact between deformable electrode 406 and conductive layer 414. As described in the application, "Deformable plate 406 and counter plate 412 are preferably compressed and fixed by a fixing pin 420." Fig. 17A shows that the shortest distance between the deformable electrode 406 and the base electrode 414 varies along the length of the deformable electrode. The base electrode and the deformable electrode converge at their central portions (i.e., at a fixed-region along the length of the base electrode) where (a) they are at their closest

possible distance from each other, and (b) they are fixed, by fixing pin 420, at a fixed distance from each other (i.e., they are fixed at a fixed distance from each other by the structure of the apparatus).

FIG. 17A

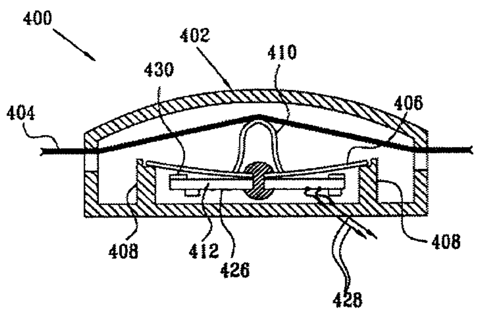
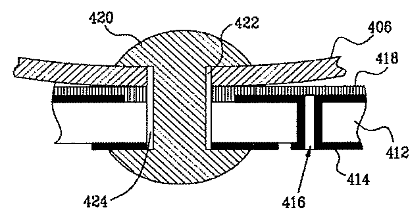


FIG. 17B



Claims 188 and 289 have additionally been amended to recite that the deformable electrode is supported by a deformable-electrode supporter at a support region that is remote from the fixed region. Deformable-electrode supporters 408 are shown in Fig. 17A to support the deformable electrode 406 at a region (at the ends of the deformable electrode) that is remote from the fixed region (at the center of the deformable electrode).

The specification of the present application states (US 6,662,032, column 14, lines 25-34):

> Device 400 preferably comprises a deformable plate 406, constructed of an elastic material, which is conductive on at least one large surface thereof. **The deformable plate is supported from below by plate supporters 408.** In order to minimize friction, the position of deformable plate 406 is preferably not fixed by plate supporters 408. The stress of belt 404 is exerted on deformable plate 406 by means of a bridge 410, which may be an integral part of the deformable plate 406 or separate therefrom, and is preferably made of a low-friction material to allow the belt to slide easily thereon.

<u>Response to the Examiner's objections</u>

In point 5 of the Office Action, the Examiner stated:

> 5. As to claims 189 and 288, the claim recites "a distance between the base electrode and the deformable electrode varies along a length of the deformable electrode" when "no force is applied to the deformable electrode." It is unclear what point(s) of reference is used on the base electrode, whether the "distance" is calculated by determining the distance between a fixed point on the base electrode along the length of the deformable electrode, or the distance between the two points of a base and deformable electrode along a plane that is perpendicular to the insulating layer that is situated between the two types of electrodes. While the latter seems to be the case, the claim itself is not worded clearly enough to particularly point out and distinctly claim the subject matter. For purposes of examination, the latter interpretation will be used.

The Applicant respectfully submits that, in the context of claims 188 and 289, it is understood that the meaning of "a distance between the base electrode and the deformable electrode" is the shortest distance between the electrodes. Nevertheless, claims 188 and 289 have been amended to explicitly recite "a shortest distance between the base electrode and the deformable electrode." The Applicant submits that (a) the meaning of the shortest distance between the base electrode and the deformable electrode is, for any given point along the base electrode, the shortest distance to any point on the deformable electrode, and (b) this meaning is clear to one skilled in the art.

In point 6 of the Office Action, the Examiner stated:

> 6. As to claims 189 and 288, the claim recites something that "is fixed by the apparatus." While it seems that the applicant is intending to state that the closest possible distance is fixed by the structure of the apparatus, the way the claim language stands is indefinite as it fails to particularly point this out.

Claims 189 and 288 have been amended to recite that the closest possible distance is fixed by the structure of the apparatus, in order to overcome the Examiner's objection.

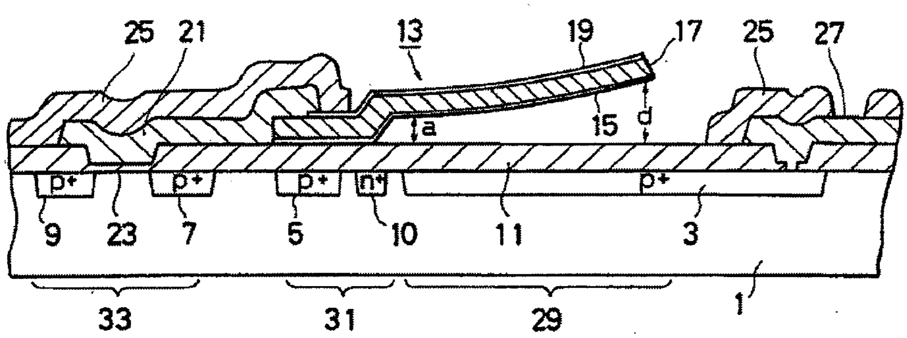
In points 9 and 10 of the Office Action, the Examiner stated:

9. Claims 189, 192, 194, and 288 are rejected under 35 U.S.C. 102(b) as being anticipated by Hoshino (USP #4,672,849).

10. As to claims 189 and 288, Hoshino teaches an apparatus comprising a housing (Fig. 1), a base electrode (1), a deformable electrode (13) mechanically coupled to the base electrode and the housing, the base electrode and the deformable electrode defining a capacitor having capacitance, such that the capacitance is varied responsive to deformation of the deformable electrode (col. 4 lines 38-65), wherein when no force is applied to the deformable electrode and the distance between the base and deformable electrode varies along a length of the deformable electrode, the two electrodes converging to a closest possible distance from each other, which is fixed by the apparatus (Fig. 1).

Fig. 1 of Hoshino shows a cantilever 13:

FIG. 1



Hoshino's Abstract states:

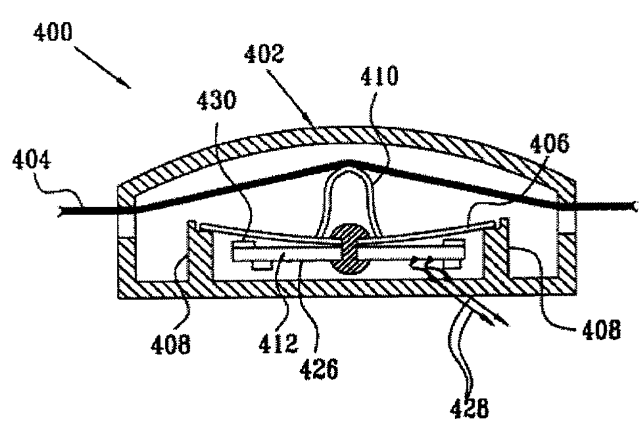
A semiconductor vibration detecting structure formed on a semiconductor substrate and a method of manufacturing the same in which the curvature of the cantilever of the vibration detecting structure in the direction gradually deviating from the surface of the semiconductor substrate can be determined by the thickness of the

upper nitride layer for regulating the curvature of the cantilever, with the thicknesses of the other layers constituting the cantilever and the length thereof being constant. In the semiconductor vibration detecting structure according to the present invention, even if vibrations having relatively large vibration levels are applied to the detecting structure, the cantilever of the vibration detecting structure vibrates well but never hits the surface of the semiconductor substrate, thus enabling a wide rage of mechanical vibrations to be detected with a high sensitivity.

The Examiner stated that (a) the cantilever of the Hoshino patent corresponds to the deformable electrode of the present application, (b) substrate 1 of the Hoshino patent corresponds to the base electrode, (c) the distance between the deformable electrode and the base electrode varies along the length of the deformable electrode, and (d) the deformable electrode and the base electrode converge to a closest possible distance from each other which is fixed by the apparatus.

Claims 189 and 288 of the present application have been amended to recite a deformable-electrode supporter configured to support the deformable electrode at a support region that is **remote** from the fixed region. The deformable electrode supporter of Claims 189 and 288 of the present application is shown, for example, in Fig. 17A (reference numeral 408) of the present application:

FIG. 17A



The Applicant submits that a device including the deformable-electrode

supporter, as recited in Claims 189 and 288 of the present application, is novel and non-obvious over Hoshino. **Hoshino does not disclose a supporter for supporting cantilever 13 at a support region that is remote from a fixed region, at which fixed region the deformable electrode and the base electrode converge.** Furthermore, if a deformable-electrode supporter, as recited in Claims 189 and 288, was incorporated into the device of the Hoshino patent, then the device would not function as it is supposed to function. The device shown in Fig. 1 of Hoshino is a vibration-detecting structure. As stated in Hoshino's Abstract "the cantilever of the vibration detecting structure **vibrates well** but never hits the surface of the semiconductor substrate, thus **enabling a wide rage of mechanical vibrations to be detected with a high sensitivity**. (emphasis added)" If a deformable-electrode (i.e., cantilever) supporter were to be placed at a site that is remote from the fixed region, then the cantilever would not vibrate. For example, if a supporter were placed where the arrow labeled "d" appears in Fig. 1 of Hoshino, it would prevent the cantilever from vibrating. Therefore, it would not be obvious to combine a deformable-electrode supporter, as recited in Claims 189 and 288 of the present application, with Hoshino, since the incorporation of the supporter into the Hoshino device would prevent the Hoshino device from performing its intended function.

Claims 192 and 194 were also rejected over Hoshino. The Applicant submits that Claims 192 and 194, being dependent from Claim 189, and therefore of narrower scope than Claim 189, are patentable for the reasons provided hereinabove.

Claims 191 and 193 were rejected as being obvious over Hoshino in combination with one or more other references. The Applicant submits that Claims 191 and 193, being dependent from Claim 189, and therefore of narrower scope than Claim 189, are patentable for the reasons provided hereinabove.

The Applicant believes the amendments and remarks presented hereinabove to be fully responsive to all of the grounds of rejection and objection raised by the Examiner. In view of these amendments and remarks, the Applicant respectfully submits that all of the claims in the present application are now in order for allowance. Notice to this effect is respectfully requested.

Respectfully submitted,

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